Pain assessment immediately after venipuncturein adulthood

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Abstract: Background: Differences in individual pain perception ,response to pain ,as well as the multiple and diverse causes of pain require the use of highly specialized abilities to promote comfort and to relieve pain.**Aim** of this study: to assess the pain immediately after venipuncture in young and middle adulthood and identify the factors that affecting on pain assessment immediately after venipuncture. **Subjects & Method:** Thestudy design was cross-sectional descriptive composed of: 60 patients who were ordered for venipuncture and selected from surgical – medical ward ,their ages ranged from 17-65 years oldatgovernmental hospitalin Makkah Al mukarramah.Three tools were used to collect the data , interview questionnaire sheet, Observational indicators sheet & tow standard pain assessment scales (numerical rating scale and Simple verbal descriptive distress scale). **Result:** it was found that highest percentages among both study samples lived in urban (96.66&73.33±1.150,SD=.36) respectively. By using (SVDPDs), the majority of young and middle adulthood were had annoying feelingimmediately after venipuncture constituted (43.33% &36.67%) respectively. There are a statistical significance difference between young and middle adulthood related to patient's facial expressions, verbalizations and changes in mental status (.045, .023&.038)respectively**Conclusion**: There are no differences between the middle & young adult in pain assessment immediately after venipuncture. **It is recommended** that the behavior indicators important measure for assessing the pain in this period of life.

Key words: Pain, Venipuncture, Young Adulthood, Middle Adulthood, Simple Descriptive Pain Distress Scale (SVDPDs) & Assessment.

1. Introduction:

Pain is an uncomfortable feeling that tells there is something may be wrong in your body. It is body's way of sending a warning to the brain[1]Pain is difficult to define and describe ,which is the way that brain interprets information about a particular sensation that body is experiencing. Information (or "signals") about this painful sensation are sent via nerve pathways to the brain. Perception and tolerance of pain vary widely from individual to individual, and essentially can be affected by many outside factors, some of which can be controlled by special techniques[2]

The patient's pain experience is influenced by a large number of factors. These factors may increase or decrease the patient's perception of intensity of pain , increase or decrease his tolerance for pain and produce a particular set of behavioral responses rather than other responses[3]

The assessment of pain guided by: Assessment of the characteristics of the patient's pain ,Assessment of factors   that influence responses to pain ,Assessment of responses of pain by different tools such as physiological manifestation (change in pulse ,blood pressure, respiratory rate, etc.) , Numerical rating scale &behavior responses scale. These tools can be supply information about patient experiences of pain[3]

Experts agree that pain can be adequately assessed in most older adults using common rating scales. the Wong / baker faces rating scale , recommended for pain assessment in children , may also be affective for this age group because a 0-5 scale is easier to use , special attention consideration of an older patients and the younger patient's pain can positively affect the nurse′s ability to assess pain accurately[4]

Young adults are at their peak of health, strength, emergency, endurance, & sensory and motor functioning. Visual acuity is keenest from about age 20- 40years; sensitivity to pain undiminished until at least 45 years. Middle aged adult, rangefrom 40to 65years, have been called the years of stability & consolidation .They begin to loss sensitivity of pain after age 50.However,pain's productive function

remains; although people feel pain less, they become less able to tolerate it. [5]

Venipuncture, venopuncture or venepuncture is the process of obtaining intravenous access for the purpose of intravenous therapyand forvenousblood sampling …etc..[6]Venipuncture are hurtful to the patient that effect on pain sensation .An important aspect of caring for patients in pain is reassessing then the intervention has been implemented based on the patients assessment of pain , as reflected in pain assessment tools. The nurse repeats this assessment at appropriate intervals after the intervention   & compares the result with the previous rating to indicate the effectiveness of the pain relief measures and provide a basis for continuing or modifying the plan of care .[3]

Venipuncture skill are hurtful to the patient that affect the pain sensation .An important aspect of caring for patients in pain is reassessing the pain after the intervention has been implemented and provide a basis for continuing or modifying the plan of care .The measure's effectiveness is based on the patient's assessment of pain, as reflected in pain assessment tools Measures.[3]

Research Significance:

Pain is a complex phenomenon; it is often described in the literature as a subjective complaint that acts as a warning sign .Strategies for changing pain management practices is essential for acute and critical care nurses .Pain is seen by many adult patients as a forecast of serious illness or death**.** Although pain is defined by the International Association for the Study of Pain (IASP) as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage,the researches about assessment of pain with venipuncture for adulthood is less.So our research aimed to describe pain immediately after venipuncture in young and middle adulthood and identify the factors that affecting on pain assessment immediately after venipuncture.

Aim of research

This study aimed to:

- Assess the pain immediately after venipuncture in young and middle adult hood.
- Identify the factors that affect the pain responses immediately after venipuncture in adulthood.

Research question:

Are there difference between young and middle adult hood in pain assessment immediately after venipuncture?

What are the factors thataffecting the pain assessment immediately after venipuncture in adult hood ?

2. Subjects and Method:
Designs:

It is a cross-sectional descriptive study.
Setting:

This study was carried out in medical and surgical wards at governmental hospital inMakkah Al mukarramah.
Sample:

The study sample included females patients who were ordered for venipuncture in surgical &medical wards ,total number (n= 60). Patients'age ranged from 17-65 years old, different nationality and conscious.
Tools of data collection:

Tow tools were used to collect the data for this study

▪   **First Tool:** An Interview Questionnaire Sheet, it included three parts

*1st part*covers biosocial and demographic data of the patient as age, sex, level of education, marital status, occupation, ……etc.

2nd part was designed in Arabic language and developed by the researchers to assess knowledge that cover the factors that effecton pain responses. It including 6 items: fear ,stress, patient's pain experience, culture and socioeconomic factors . The scoring was collecting by answering "yes", "no"& " no comment "

3rd. part sheet was used   immediately   after venipuncture covering the assessment of physiological changes include pulse, respiration ,blood pressure ,skin pallor and perspiration sensation which were checked by researchers and the results describe within "normal" , "higher ' ,& " lower " for each item .

▪   **Second Tool:**

Observational indicators sheet for pain developed by researchers after review of literature.It used for who speaks a foreign language who is unable to explain the pain experience to assess patient's behaviors that indicate pain such as verbalization ,vocal response ,facial   and   body   movements   and socialinteraction.Each item was described in two response options " observed " & "not observed " by researchers .

Third Tool

This tool was involve tow standard pain assessment scale:

- Numerical rating scale

The numerical rating scales are useful to measure any changes in pain by asking the patient to rate their pain from 0 to 10 ,response of 0 representing one end of the pain continuum means that no pain and response of10 means that worst pain.

- Simple verbal descriptive pain distress scale (VDS).

It is one of the most subjective, and therefore most useful, characteristics for the reporting of pain. The VDS consists of a series of phrases that represent different levels of pain intensity (e.g., "no pain," "mild pain," "moderate pain," "severe pain," "extreme pain,"

and "the most intense pain imaginable .It has shown good reliability and validity, it requires that patients interpret and express their pain in verbal terms.[7-9]

Field work

The actual field work was carried out from4 -3 -1434 to 1-6 -1434 for data collection .The researchers were available three days /week in morning shift in medical and surgical departments for three months .The nature and the purpose of the study was explained by the researchers to all participant and patients' verbal agreement was obtained were obtained before began to collect the data. An interview questionnaire and pain scales was filled out by the researchers individually. The average time needed for the completion of each questionnaire was around 20-30minutes.

Pilot study

A pilot study was carried out on 10% (6 patients)from the total sample, to check clarity of items and determined the feasibility of the study. Data collected from the pilot study were reviewed and used in making the necessary modifications prior to the final application of the study tools.

Ethical & Administrative Considerations:

Before any attempt to collect data, a formal letter was issued from the faculty of nursing,Umm Al Qura University, to obtain an official approval from the administrators of the hospital where the data were collected to conduct the study. The letter identified the researchers, the title and aim of the research.After approval of the ethics committee, an official permission was obtained from director and head of each department at governmental hospitalin Makkah Al mukarramah and informed consent was obtained from each participant. The researcher introduced herself to the respondents and managers in the study setting, significant and purpose of the study was explained to them, each participant was notified about the right to refuse to participate in the study, before taking her verbal consent.Anonymity and confidentiality of the information gathered was ensured.

Tools Validity:

Tools were submitted to a panel of three experts in the field of education and medical surgical nursing to test the content validity. Modification was carried out according to the panel judgment on clarity of sentences and appropriateness of content.

Statistical Design:

All data of the study were fed into an IBM-Compatible personal computer. SPSS-15 (statistical software) was used for statistical analysis. Descriptive statistics will used to calculate percentages, frequencies & standard deviations for the study groups. Comparison between groups of variables was done byAnova –Test (F) and T- Test (for parametric

data). P value was considered significant when at or less than $P<0.05$.

3. Results

Table (1) shows distributionof study sample according to Socio-demographic Characteristics .It was found that half (50.%) of sample were in the age group 20-40 & 41-60 years respectively. Regarding to the sex, it was found that the half percentages of the study sample were (50 %±1.50, SD=.50) females. Concerning educational level, (66.66% &43.33%±1.98,SD=.67) of the young adulthood and middle adulthood had middle educational level. Regarding residence, it was found that highest percentages among both study samples lived in urban (96.66&73.33±1.150,SD=.36) respectively. As regard Occupation it found two third among both study samples have occupation. Concerning economic status the finding show that (50 % &46.66%±2.43,SD=.59) among young and middle adulthood had high economic status.There is a statistical significant differences among both groups related to residence (0.011) P= ≤0.05.

Table (2) shows distribution of the study sample according to factors that affect thepain assessment immediately after venipuncture**.** It found that, the highest percentage (80%) among young adult mentioned that, nurse explain for them thestepsof needleprickbefore perform venipuncture while lowest percentage(6.66%) among same group said that they were afraid of the pathogen .The results revealed that majority (93.33%) among young adult represented that, they were not afraid from the hospital. On the other hand ,the findings showed that, the highest percentage (63.33%) among middle adulthood mentioned that they were actuallyfeel painfromvenipuncture and the nurse explain for them thestepsof needleprickbefore perform it respectively, while most from same group were not afraid from the pathogen.Lastly there a no statistical difference among both groups regard to factors affecting the pain assessment.

Table (3)illustrate distribution of the study sample according to physiological changes in pain assessment immediately after venipuncture. The results revealed that, the majority among young and middle adulthood were not had any changes in physiological status during their assessment of pain immediately after venipuncture&there is no a statistical significant differences among both groups related to all physiological status .

Table (4) shows distribution of the study sample according to pain assessment scales immediately after venipuncture. The findings represented that, there was no statistical differences among pain scales

measurements immediately after venipuncture P= ≤0.05.

Fig. (1) illustrate description of the study sample according to simple descriptive pain distress scale. The results revealed that, majority of young and middle adulthood were had annoying feelingimmediately after venipuncture constituted (43.33% &36.67%) respectively while minority from them weren't non distress constituted (3.33% & 0 %) respectively.

Fig.(2) shows distribution of the study sample according to numerical rating pain scale immediately after venipuncture. The findings represented that, one third among young adult sample said that the degree of pain is equal to number three immediately after venipuncture and around quarter among middle adult were said that the degree of pain is equal to number two .

Fig .(3) illustrate rating pain scale levels immediately after venipuncture among study sample. The results found that, most of the study sample among both groups were hadn't pain complaining immediately after venipuncture.

Table (5) shows distribution of the study sample according to observational of behavioral indicators for pain immediately after venipuncture. The findings represented that, there are a statistical significance difference between young and middle adulthood related to patient's facial expressions, verbalizations and changes in mental status respectively (.045, .023 & .038) P= ≤0.05.

Table(1): Distribution of study sample according to Socio-demographic Characteristics

Demographic data		Mean	Young adulthood (20-40) N=30		Middle adulthood (41->65) N=30		F	Sig.
		SD	No.	%	No.	%		
Age			30	100	30	100		
Sex	Male	±1.50 SD=.50	15	50	15	50	.000	1.000
	Female		15	50	15	50		
Education level	Read & write	±1.98 SD=.67	3	10	11	36.66	3.055	.086
	Middle level		20	66.66	13	43.33		
	High level		7	23.33	6	20		
Residence	Urban	±1.150 SD=.36	29	96.66	22	73.33	6.932	.011
	Rural		1	3.33	8	26.66		
Occupation	Work	±1.35 SD=.51	20	66.66	20	66.66	.062	.804
	Not work		10	33.33	10	33.33		
Economic status	Low	±2.43 SD=.59	0	0	3	10	.756	.388
	Middle		15	50	13	43.33		
	High		15	50	14	46.66		
	Very high		0	0	0	0		

Table (2): Distribution of the study sample according to factors that affectthe pain immediately after venipuncture.

factors		Young adulthood (20-40) N=30			Middle adulthood (41->65) N=30			F	Sig.
		yes	No	No answer	yes	No	No answer		
1. Are you afraid from the hospital?	No.	8	22	-	5	25	-	.867	.356
	%	26.66	73.33	0	16.66	83.33	0		
2. Are you afraid from the pathogen?	No.	2	28	-	1	29	-	.341	.561
	%	6.66	93.33	0	3.33	96.66	0		
3. Are you afraid from the needle?	No.	11	17	2	11	19	-	.224	.638
	%	36.66	56.66	6.66	36.66	63.33	0		
4. Have you been explainedthestepsneedleprickby the	No.	24	6	-	19	11	-	2.054	.157
	%	80	20	0	63.33	36.66	0		

		Young adulthood (20-40)			Middle adulthood (41->65)			F	Sig.
nursebefore perform venipuncture?									
5. Do you feel fear from venipuncture?	No.	17	13	-	14	15	1	.924	.340
	%	56.66	43.33	0	46.66	50	3.33		
6. Do you actuallyfeel painfrom venipuncture?	No.	21	8	1	19	11	-	.062	.804
	%	70	26.66	3.33	63.33	36.66	0		
7. Do you have previous experience with venipuncture?	No.	8	22	-	7	23	-	.086	.770
	%	26.66	73.33	0	23.33	76.66	0		
8. Are you afraidofcomplicationsresultingfrom venipuncture?	No.	20	10	-	17	13	-	.620	.434
	%	66.66	33.33	0	56.66	43.33	0		
9. Are you afraid from anursemalpractice with venipuncture?	No.	19	11	-	15	15	-	1.069	.305
	%	63.33	36.66	0	50	50	0		
10. Are you afraid of thechangein place of venipuncture?	No.	16	14	-	13	17	-	.587	.447
	%	53.33	46.66	0	43.33	56.66	0		
11. Do you have senseofpainfrequently in your life?	No.	6	21	3	9	20	1	1.459	.232
	%	20	70	10	30	66.66	3.33		

Table (3): Distribution of the study sample according to physiological status of pain immediately after venipuncture.

Physiological changes		Young adulthood (20-40) N=30			Middle adulthood (41->65) N=30			F	Sig.
		Normal	*High*	*Low*	*Normal*	*High*	*Low*		
Pulse	No.	28	2	0	25	5	-	1.442	.235
	%	93.33	6.66	0	83.33	16.66	-		
Respiratory Rate	No.	26	3	1	26	3	1	.000	1.000
	%	86.66	10	3.33	86.66	10	3.33		
Bp	No.	30	-	-	29	1	-	1.000	.321
	%	100	0	0	96.66	3.33	0		
Skin Color	No.	28	1	1	26	2	2	.644	.425
	%	93.33	3.33	3.33	86.66	6.66	6.66		
Sweating	No.	28	2	-	27	2	1	.527	.471
	%	93.33	6.66	-	90	6.66	3.33		

Table(4): Distribution of the study sample according to pain assessment scales measurements immediately after venipuncture.

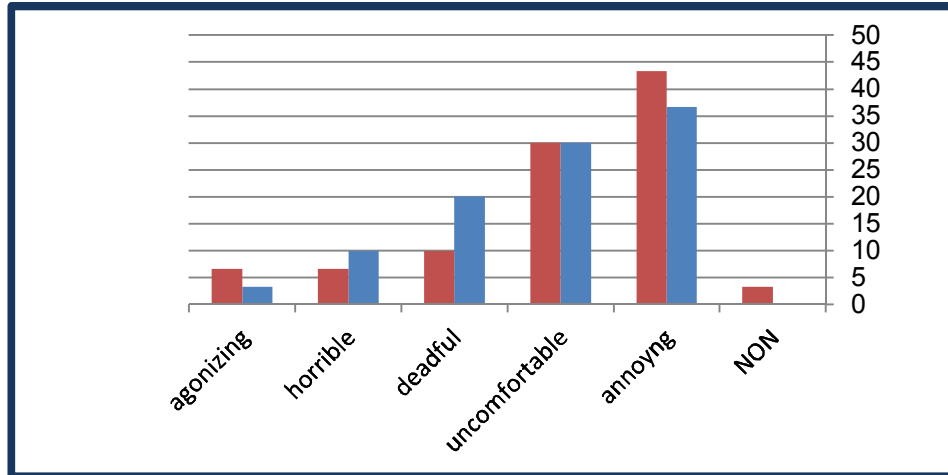| Pain scale	F	Sig.
Simple Descriptive Pain Distress Scale (**SDPDS**)	.418	.521
Numerical Rating Scale	.030	.862
Observational Indicators For Pain	.795	.376

Figure (1) :Description of the study sample according to simple descriptive pain distress scale immediately after venipuncture.
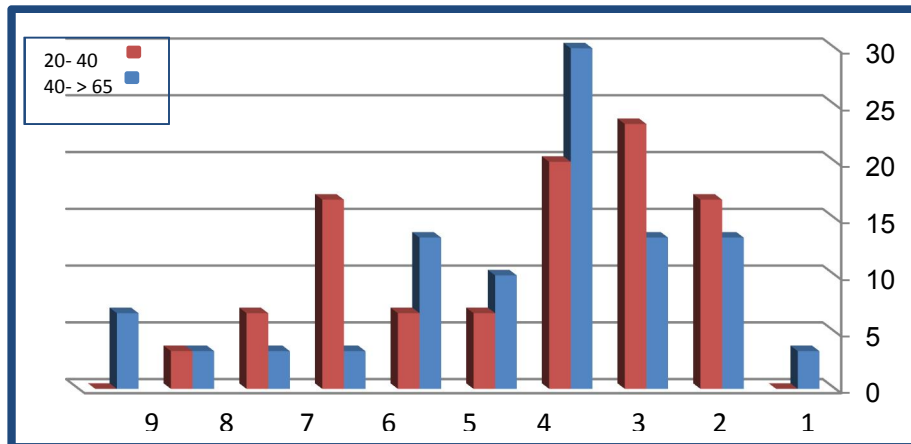

Figure (2) : Distribution of the study sample according to numerical rating pain scale immediately after venipuncture.
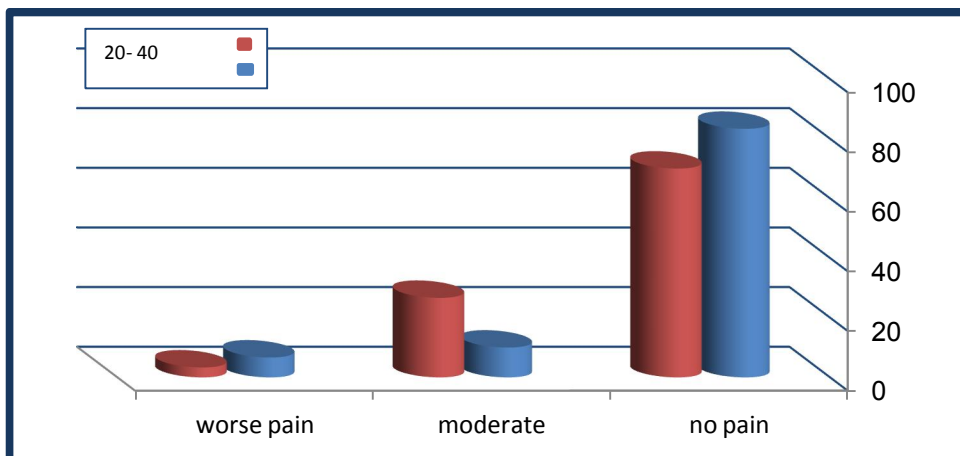

Figure (3) :Visual Analog scalefor pain immediately after venipunctureamong study sample.

Table (5): Distribution of the study sample according to observational indicators for pain immediately after venipuncture.

Behavior		Young adult (20-40)		Middle age adult (40->65)		F	Sig.
		Observe	*Not observe*	*Observe*	*Not observe*		
Facial Expressions	*No.*	24	6	29	1	4.191	.045
	%	40	10	48.33	1.67		
Verbalizations	*No.*	23	7	29	1	5.495	.023
	%	38.33	11.67	48.33	1.67		
Body Movements	*No.*	22	8	27	3	2.821	.098
	%	36.67	13.33	45	5		
Changes in Interpersonal Interactions	*No.*	22	8	27	3	2.821	.098
	%	36.67	13.33	45	5		
Changes in Activity Patterns or Routines	*No.*	22	8	27	3	2.821	.098
	%	36.67	13.33	45	5		
Changes in Mental Status	*No.*	22	8	28	2	4.500	.038
	%	36.67	13.33	46.67	3.33		

4.Discussion

Most of study sample were middle educational level lived in urban. Concerning economic status the finding show that young and middle adulthood had high economic status this findings may be related to socioeconomic status and culture of the study setting.The current study found that,more than half among young and middle adult mentioned that, nurse explain for them the steps of needle prick before preform venipuncture, this findings due to awareness of the nurse about important of explanation for procedure before performing it .

On the other hand ,the findings showed that, the two thirdamong middle adulthood mentioned that they were actuallyfeel painfromvenipuncture, this results agree with: Meeus et al [10] who mentioned that females often have high pain ratings.

While other research was mentioned that regular exposure to painful stimuli will increase pain tolerance. Therefore, although the individual may learn cognitive methods of coping with pain, which disagree with our current results**: (James ,.**[11]**)**

Moreover, mentioned that age, sociocultural factors, emotional status, past perception with pain, meaning of pain and knowledge deficit are factors may effect on individual 's perception for pain:**Karen etal.**[12]

The current study revealed that, most middle adulthood group were not afraid from the pathogen ,this may related to patients were had previous experience with venipuncture procedure.There was no statistical significant differenceamong young and middle adulthood regard to their feeling from sense of pain frequently in their life, this may related to increase the coping of pain experience in this period of life .This finding supported by**Berman, Snyder, Cozier&Erb**[5.]

The results revealed that , there is nostatistical significant differences among young and middle adulthood related to all physiological status,this due to age physiological changes and pre-procedure explanation .The findings incongruent with **Blenkharnetal,**[13] who said that nurse must be rely on physiological indicators in establishing the presence of pain and effective pain management can only be achieved with accurate pain assessment.While our results disagreewith **Patricia &Anne** [14] who revealed that pain effect on physiological status of the patients such as vital signs ,skin …etc.

According to description of the study sample according to simple descriptive pain distress scale measurement. The results revealed that, majority of young and middle adulthood were had annoying feelingimmediately after venipuncture this related to females were more sensitive to any injury.Other study agree with current results, who said that large number of pain indicators among adults have been identified, including nonverbal cues and behaviors, vocalizations, facial indices and changes in usual behavior.**Feldt.**[15] **Kappesser& Williams**[1]:concluded that, health care professionals have been found to be less accurate in identifying pain expression in other adults which disagree with current study.

The findings represented that, there was no statistical differences among pain scales measurements immediately after venipuncture except in simple descriptive pain distress scale may due inaccurate measurement of other scale .This results incongruent with **Richard etal,** [17]**who studied** seventy-nine patients (32%) reported a substantial level of pain greater than or equal to 4 on the NRS. The average pain level in this subgroup was 6.5 (SD 1.9)**.**Further, the underlying assumption is that measurement,

identification, and documentation of patients in pain should lead to improved management **JCAHO.** [1 8]

The results found that, most of the study sample among both groups were hadn't pain complaining by using numerical rating scale&simple descriptive pain distress scale immediately after venipuncture , this may be related to patient not feel fear from hospital and nurse. This findingswas not supported with the prevalence of pain with those age under 60 (125 per thousand). Another study showed that effectiveness of training individuals to improve their pain recognition skills improved the accuracy of pain facial expression recognition skills in adult patients **Sullivan.**[19]

Finally the current study show that **,**there was a statistical significance difference between young and middle adulthood related to patient's facial expressions, verbalizations and changes in mental status, this may be related to this method uncountable by individuals. This findings with other studies evaluating the use of observational approaches note that behavioral indicators are more evident and added that knowledge of the patient's unique pain behavior or expression is an important component of pain assessment **Sullivan.** [19]

Conclusion

There are no differences between the middle & young adult in pain assessment immediately after venipuncture except inobservational indicators for pain.

Recommendation
1. The measurement and documentation of patients' pain level is a necessary aspect of pain managementand for medical quality improvement.
2. Determine different measures for pain assessment and teaching & training sessions delivered to increase of nurses understanding regarding the profile of pain assessment and management.
3. The assessment of factors effecting on pain assessment must remain an important focus from the care provider.
4. The behavior indicators important measure for assessing the pain in this period of life.

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